

SOVE

Society for Vector Ecology

SOVE Newsletter

President's Message



Steve Mulligan

Dear SOVE family members:

As if the disastrous impact from the COVID-19 pandemic weren't quite enough, Putin now brings us war and genocide in Ukraine. War, good god! In the lyrics of the Edwin Starr song "War", it is asked "War, huh, yeah, what is it good for?" The comeback, of course, is "absolutely nothing", it is a "friend only to the Undertaker." But that really isn't quite true, is it? War has been good, especially good...good for diseases and for vectors.

History is replete with examples of invasions and war breaching the gates and ravaging fleeing refugees with famine and causing epidemics of vector-borne diseases. With wholesale death, destruction and devastation come chaos, contagion, plague and pestilence, the upending of sanitation and hygiene, in short, the loss of public health. Vectors don't need our help and abetting, but they've certainly taken advantage of it through the millennia

and have become more efficient because of it.

What are we to do to promulgate the message and awareness of public health in such a tumultuous world? Family and friends can provide an answer. We have always considered SOVE to be a family, and families are strengthened when they can sit around the table and talk. It's been too long since we've done that. It is high time we got together, and so it will be this year!

Filiz Gunay and our members of Euro SOVE have been working hard to finalize details and arrangements to meet once again, all the while watching over their shoulders under the ongoing shadow of the war in Ukraine. My cowboy hat is off to you, Filiz, and many thanks for your efforts. We look forward to joining you at the 22nd Conference of Euro SOVE at the Sofia Balkan Hotel in Sofia, Bulgaria on October 10 – 13, 2022. **President's message** cont'd on p. 2

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President Message *cont'd from P.1*

In the meantime, we will continue to pray for peace and a modicum of sanity.

On the subject of international affiliate conferences, Christina McCarthy and the organizing committee for the Latin American SOVE are well underway with preparations for their II Congress at the National University of La Plata in La Plata, Argentina, from October 29 to November 3, 2022. The submission of abstracts for the scientific program is open. The program will encompass zoonotic and vector-borne diseases and vectors, with emphasis on neglected diseases, which especially impact Latin American people and economies.

But first on the horizon of meetings is our 8th International Congress of SOVE on September 19 – 23, 2002 at the Hilton Waikiki Beach in Honolulu, Hawai'i. Get your board ready, it's coming up, just past the next few sets of waves. Our fearless Executive Director has been diligently working on arrangements and we are anticipating a large turnout to go along with an outstanding program being put together by Vice President Lyric Bartholomay. This

year together with our invited symposia, we have opened the opportunity for individuals to give short presentations of their research in the form of five minute "turbo" talks. The island setting of Hawai'i, with its history of migration of people and invasions of exotic flora and fauna offers a unique view of the impacts on native species, ecology, and culture. I am especially looking forward to keynote speaker Dennis LaPointe and his symposium on an Hawaiian project to protect endangered, and culturally important, native birds from avian malaria and extinction.

Of course, visit our SOVE website to stay abreast of all upcoming meetings and conferences.

Sincerely,

Steve





Northwestern Region

Ben Beard

Regional Director

Dear Colleagues and Friends,

The CDC laboratory in Fort Collins, CO, would like to announce the recent creation of a new tool to assist in analysis of pooled data for vector surveillance. Brad Biggerstaff, a research mathematical statistician in CDC's Division of Vector-Borne Diseases, created an R software package called PooledInfRate, which is now available for installation into R at the following URL: <https://github.com/CDCgov/PooledInfRate>. As with the Microsoft Excel™ add-in of the same name (available at <https://www.cdc.gov/westnile/resourcepages/mosqSurvSoft.html>), the PooledInfRate R package includes functions to estimate proportions from pooled or group testing data, and to estimate differences of such proportions. For entomologists, there is also functionality, not available in the add-in, to compute the so-called "Vector Index" used to quantify the level of pathogen in vector species, such as the amount of West Nile virus in a population of vector mosquitoes. Estimates for proportions from pooled data based on imperfect tests are also included. A package vignette/manual is included with the package to illustrate usage. If you have specific questions related to this new software tool, feel free to reach out to Brad directly at bkb5@cdc.gov. (R software may be obtained from www.r-project.org.)

Also available is a new web-based resource from NOAA that may be of interest to SOVE members – the NOAA State Climate Summaries (<https://statesummaries.ncics.org/>). The following

description is taken directly from the website and provides an overview of the information that is available:

These NOAA State Climate Summaries were originally produced in response to a growing demand for state-level information in the context of the Third National Climate Assessment (NCA) and subsequent sustained activities. This 2022 version represents a new and improved summary for each state that provides more up-to-date information on observed changes in climate, including both long-term trends and extreme weather events relevant to that state. The summaries consist of observed and projected climate change information and focus on aspects that are part of NOAA's mission (mainly characteristics of the physical climate and coastal issues).

The website is organized in such a way that makes it very simple to observe and/or download climate information from all 50 states and from Puerto Rico and the U.S. Virgin Islands. For each state/territory, there is a summary of trends, key messages, graphics that display current and historical trends in temperature and precipitation, as well as projections on what changes are likely to occur related to weather, including projections in sea level rise for coastal regions.

In perusing the information posted for states in the Northwest region, several very alarming trends are apparently related to annual temperature, drought and overall water availability, and extreme precipitation events. The changes that both have been observed and are forecasted will increasingly affect the ecology of vector-borne diseases in this region. For a related postdoctoral opportunity, see the job description on page 9.

Ben



SOVE –European Region

Filiz Gunay

Regional Director

Dear Colleagues,

I would like to use this opportunity to give a brief update about the upcoming EOSVE conference we have all been waiting for. As previously planned, the next ESOVE Conference will be held in Sofia, Bulgaria on October 11-14, 2022. Registrations will be open as soon as possible. Please spread the word, mark your calendar, and check the SOVE website for the latest announcements. News about abstract submissions and registration information will be announced on the website. I can't wait to have us all gathered in the same room after such a long intermission.

We have quite an intense fall ahead of us, as the 8th International Congress of SOVE will be held in Hawaii on September 19-23, 2022, only weeks before the Latin American SOVE Conference, which will take place in Argentina on October 29 – November 3, 2022 and the ESOVE Conference will be October 11-14, 2022. We expect the next International SOVE Congress to take place in 2023 and its European counterpart to follow suit in 2024. This way, we will get back on track and sync our events with the European Mosquito Control Association's meetings as well.

As usual, the scientific focus of the ESOVE Conference will include the items vector ecology and biology, host-pathogen interactions, and phylogeny and biogeography. Additionally, we feel the need to highlight the concept of green cities and risks associated with VBDs. Our meeting will address the surveillance and management of VBDs to draw attention to the social determinants of

VBD interventions, a quite neglected aspect of VBD prevention in the field. Since the role of citizen science and outreach in the surveillance of vector species plays such a vital role, we will devote a symposium to this particular topic. Needless to say, I'm looking forward to hear our distinguished experts offer their valuable insight on these pressing issues. The conference will also feature a session where participants will be informed about current active networks and upcoming collaborative projects across Europe. As always, we will be hosting a number of enlightening student symposia as well. We are working towards establishing some awards, including the "Young Women in Science Award".

We are never short of hypotheses in our research field, either due to the purely fundamental nature of science, or thanks to the rather anthropocentric takes born out of VBDs. For what it's worth, I recently came across a study which suggests that "serendipity" might be more than a happy accident! I hope our collaboration at the ESOVE Conference will generate more than a few of these rare and unique "aha" moments of inspiration. In the face of all challenges and uncertainties, I'm determined to turn this event into a memorable one with the support of the SOVE community. I'd like to specifically thank the Scientific Committee for their valuable input and support.

I will be providing you with updates in our next newsletter. Stay safe. I'm looking forward to seeing you soon.

Filiz Gunay,





Dear Colleagues,

The SOVE (Indian Chapter) is in pursuit to promote scientific research, dialogue, discussion, exchange of ideas and training for better understanding of vector ecology and for effective control of vectors and vector borne diseases (VBDs). A meeting of the local executive committee was held by virtual mode on February 12, 2022, to discuss the themes of the forthcoming International Conference of SOVE Indian Region at the Indian Council of Medical Research-Vector Control Research Centre (ICMR-VCRC), Puducherry and to discuss about the modalities of fund raising for the Conference activities. The meeting was chaired by Ashwani Kumar (President/Director), and attended by Kalpana Baruah (member), Deeparani Prabhu (member), Sandeep Garg (treasurer), Ajeet Mohanty (secretary), A. N. Shriram and K. H. K. Raju.

The members were unanimous in their opinion that during the past three to four decades, globally there has been an emergence of epidemic arboviral diseases transmitted primarily by mosquitoes. The incidence and extent of the epidemics, transmitted by urban *Aedes* species, have gradually increased over space and time, during the past decade. Hence, we need to focus on the control of *Aedes*-borne infections.

Initially, scientists/delegates from overseas had shown their willingness to attend the meeting in-person. In view of the current ongoing Russia-Ukraine war, the delegates/scientists from USA and Germany had been denied visa from their embassies. Therefore, because of the prevailing scenario, the 2nd International Conference had to be

SOVE –Indian Region

Ashwani Kumar Regional Director

postponed, but we hope to schedule the conference towards the end of this year or early 2023. However, we will keep you updated.

Fortunately, as of today, the third wave of COVID-19 pandemic has relented in India. With the total cases of 43,153,043. As of 29th May 2022, the COVID-19 case load in India has descended to 17,087 active cases, 42,611,370 cured/discharged, and 524,586 deceased. The COVID-19 Vaccination stands at 1,932,844,077 as of this date. COVISHIELD, COVAXIN and SPUTNIK are being administered to adults with 1,381,764 doses of vaccines have been administered in last 24 Hours. Precautionary dose is now available for fully vaccinated citizens. Currently, new vaccines for children (12-17 years) are available. The Government of India (GOI) is encouraging the children to register for Corbevax and Covovax vaccines. The GOI is taking all necessary steps to ensure that we are prepared well to face the challenge and threat posed by the growing pandemic of COVID-19 caused by the Corona Virus and its mutants. The Ministry of Health & Family Welfare, GOI, is empowering the citizens with right information, health advisories, and precautions to be taken to prevent the spread of the virus. The downward trends of COVID-19 spells good news for the economy and restoration of normal functioning including the research and control of vector borne diseases.

The ICMR-VCRC at Puducherry, located in southeastern part of India is currently the second home for the SOVE Indian Chapter. The active cases in the Union Territory of Puducherry, has dropped to 22. The territory reported zero fresh cases on May 29, 2022.

————— *Kumar cont'd on p. 7*



Lyric Bartholomay

SOVE Vice President & Program Chair

Dear Colleagues,

A very dynamic program is taking shape for the 8th International Congress of SOVE, which will be held in Honolulu, Hawaii, September 19 -23, 2022!

The first Dan Strickman Memorial Lecture, sponsored by the Bill and Melinda Gate Foundation, will be given by Sadie Jane Ryan of the University of Florida. Her keynote address entitled, "Plans may change: shifting risks of vector-borne diseases on a warming planet," should provide lots of thought-provoking data that will be followed up by a round table at the end of day 1 concerning the responsiveness to vector-borne disease in an era of global change.

The first Mir S. Mulla Honorary Lecture will be given by Dennis LaPointe of the US Geological Survey. His keynote address, "The Hawaii experience – controlling Culex for avian malaria," will be part of a symposium moderated by LaPointe.

Rounding out the list of firsts is the Turbo Talks. This is the first year that SOVE has considered submitted abstracts for presentation. These fast-paced talks will provide insight into a myriad of new and exciting research.

Students will continue to have their own symposium with a top prize, the Dan Strickman Memorial Student Award, sponsored by the Bill and Melinda Gates Foundation, for best presentation. Student abstracts must be submitted by June 10th at <https://app.oxfordabstracts.com/stages/3870/submitter>.

Poster abstracts are due by July 15th and can be submitted at <https://app.oxfordabstracts.com/stages/3870/submitter>.

Additional feature symposia include SIT, genome editing, invasive vector species and community scientist input, as well as two additional round table discussions. Last but not least, field ecology day will feature some of the breathtaking sites on the island of Oahu.

See you there!

Lyric

Please mark your calendar
for the forthcoming
8th Congress of SOVE
September 19-23, 2022
Honolulu, Hawaii



Sadie Jane Ryan



Dennis LaPointe

A Journal of Vector Ecology Spotlight

A Next Generation [DNA] Sequencing (NGS)-based method for identifying the sources of sugar meals, in mosquito vectors of West Nile Virus in Israel

Ibrahim Abbasi (ibrahima@ekmdhuji.ac.il) et al. and Alon Warburg

Department of Microbiology and Molecular Genetics, The Hebrew University of Jerusalem 91120, Israel

Culex spp. mosquitoes transmit West Nile Virus (WNV) in many countries including Israel. We are conducting studies designed to gain a better understanding of mosquito behavior in the field. We hope that the data generated by these studies will improve our understanding of the transmission dynamics of WNV.

As an invaluable tool for these studies, we developed a multi-detection assay (MDA) designed to detect and identify different parameters in individual mosquitoes. Using Next Generation [DNA] Sequencing (NGS) we are able to characterize large numbers of DNA sequences. For example, we can detect the sources of blood and plant-meals, the composition of the bacterial gut microbiome and the species of the mosquito. All these can be individually analyzed for several hundred mosquitoes in one NGS/MDA run. In the current publication, we focus on plants that serve as sugar meal sources for male and female mosquitoes.

Mosquito females bite humans and other animals in order to obtain protein (from the blood) for maturing their eggs. In addition, both sexes, males and females, feed on plant-derived sugars. Identifying the plants from which mosquitoes feed is very difficult because the sugar meals contain very low amounts of DNA. Therefore, the extremely sensitive NGS based MDA, represents a technical breakthrough facilitating this type of studies. We identified the source of sugar meals taken by mosquitoes by sequencing genes, with plant-species (or genus) -specific sequences.

The publication aims to demonstrate the feasibility of using NGS to identify the plants that serve as favored sugar-meal sources and, combined with appropriate ecological studies, pinpoint optimal locations for trap placement (near favored plants) where traps will have detrimental impact on mosquito populations. Another potential benefit could be the isolation of volatile compound(s) emitted by plants that serve as mosquito attractants.

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Kumar cont'd from p. 5

All the field projects/activities, which were grounded due to the third wave of the pandemic have picked up momentum. The vector biologists, like others, are increasingly participating in online WEBINARS which have become an order of the day. The teaching of M.Sc. Public Health Entomology Course has resumed and the first semester exams have been completed. Recently, the third semester exams also have been accomplished. This augurs well for the progress of the current and future academic sessions

As a country, I believe we have used the social and behavioral science, ramped testing with a robust vaccination program to tackle the three waves of COVID-19 upsurges. I surmise, that India is on the path to defeat the COVID and all my fellow Indians are contributing their might towards realizing this goal. Undoubtedly as in other walks of life elsewhere, the pandemic has been a serious obstacle in VBDs research and mitigation measures of VBDs. As an optimist, I believe, there is now a real hope that vaccines will help end the pandemic soonest. But until it is over, we must stay vigilant and continue to protect our loved ones by wearing masks, physically distancing, washing our hands and ensure that eligible people.....**Kumar** cont'd on p. 9.



II Congress of the Latin American Society for Vector Ecology

October 29—November 3, 2022

See the website at: <https://congresos.unpl.edu.ar/lasove>

Christina McCarthy, National University, Le Plata, Argentina

Keystone Symposia on Vectors.

Below is information about a Feb 2023 Keystone Symposia on vectors. This symposium will take place concurrently with a skin immunology symposium with the purpose of connecting vector/skin immunologist to discuss vector/vertebrate host interactions at the bite site. These two symposia will take place in Breckenridge, Colorado February 13-16, 2023.

Vector Biology: <https://www.keystonesymposia.org/conferences/conference-listing/meeting?eventid=6860>

Skin immunology: <https://www.keystonesymposia.org/conferences/conference-listing/meeting?eventid=6859>

NIAID World Mosquito Day Webinar

Title: NIAID Mosquito Day Webinar:

How will climate change impact mosquito biology and mosquito-borne diseases?

Date/Time: August 16, 2022, 11:00am-12:30pm Eastern Time

Speakers: Matthew Thomas, Professor, Invasion Science Research Institute, University of Florida, and Elizabeth McGraw, Professor and Biology Department Head, Pennsylvania State University

Register Here: https://nih.zoomgov.com/webinar/register/WN_TBR9Rb2TRyq3zxva-NHgCQ

In Other News:

Judge orders stop to California's pesticide spraying program: https://www.capitalpress.com/state/california/judge-orders-stop-to-californias-pesticide-spraying-program/article_0ae6b363-2183-5a67-92de-49109b0f862e.html

How climate change affects vector-borne diseases: <https://wellcome.org/news/how-climate-change-affects-vector-borne-diseases>

The growing threat of tick-borne disease part I: Powassan Virus: <https://www.forbes.com/sites/williamhaseltine/2022/05/23/the-growing-threat-of-tick-borne-disease-part-i-powassan-virus/?sh=7ee45f4330d8>

Discovery of mosquito survival tracts leaves room for new disease vector control tactics: <https://phys.org/news/2022-06-discovery-mosquito-survival-tactics-room.html>

Early Career Reviewer Program

The Center for Scientific Review (CSR) at the National Institutes of Health invites early career scientists to join our Early Career Reviewer program. Participants gain first-hand NIH grant review experience which can be helpful in preparing their own grants.

In brief, the program is open to those who:

- Have at least 1 year of independent research experience (assistant professors and similar roles; associate professors are not eligible and post-docs are not eligible)
- Have not held an R01 or equivalent
- Have at least one senior-authored publication (first, last, or corresponding) since earning a Ph.D. or M.D. and at least one in the last 2 years
- Have submitted an NIH grant application and received the summary statement

Details and the application can be found here:

<https://public.csr.nih.gov/ForReviewers/BecomeARviewer/ECR>

Questions are welcome – CSRearlycareerreviewer@mail.nih.gov

Resources

BEI Resources for Vector Biology Research NIAID's BEI Resources program (www.beiresources.org) provides Vector Biology resources for free to registered, approved researchers in domestic and foreign institutions with appropriate facilities and containment procedures for vector research. Our widely requested holdings include LIVE arthropod vectors of human disease, including anopheline and culicine mosquitoes, reduviids, ticks and sand flies, associated reagents and genomic materials for entomological research, along with insectary protocols. For the cost of nothing, recipients are only required to acknowledge the use of the individual resources in publications and presentations of the research in which the materials are used. For questions please contact:

Adriana Costero-Saint Denis, PhD

Vector Biology Program, NIH,

Phone: 240-292-4284

Email: acostero@niaid.nih.gov

<https://www.niaid.nih.gov/research/vector-bio>

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A Free Book! A reprint book that might be of interest to some of us. Free pdf download.

<https://www.mdpi.com/books/pdfview/book/5012>

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Kumar con'd from p. 7:

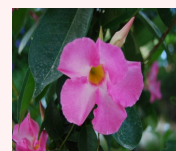
in our contact are vaccinated.

The membership of SOVE Indian Region, in the recent times, has swelled to 126. Currently, there are 79 regular, 12 retired, 34 students and 1 institutional member. Efforts are underway to increase the membership further to cover the length and breadth of the country, with an ultimate aim of PAN India presence. Following which efforts shall be made to enroll members from the neighboring countries of the region.

With the ongoing Covid-19 crisis, most of us are facing mental stress, anxiety, and depression. Research indicates that keeping a positive attitude can impact both physical and mental health. Therefore, we have to use each day as a new challenge to get away from negativity and support others to stay positive. It sounds bizarre to stay positive in a situation like this, but not impossible.

Friends! Stay focused, stay safe and healthy and we shall soon overcome this pandemic and say it a good-bye never come again! The Key to Safety is in our own Hands!

Ashwani Kumar,



Job Opportunity

POSTDOCTORAL POSITION: VECTOR GENOMICS AND BIOLOGY—June 1, 2022

The Norris laboratory in the Department of Molecular Microbiology and Immunology at Johns Hopkins Bloomberg School of Public Health in Baltimore, is seeking a highly motivated individual for a postdoctoral position focusing on mosquito vector genomics and biology. The Norris laboratory is interested in understanding genetic diversity and molecular markers/barcodes that can be used to confirm mosquito identity. This involves development and validation of molecular genetic tools, phylogenetic analysis including spatiotemporal population level studies, and association with vector-borne pathogen incidence.

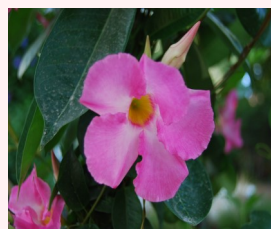
This postdoctoral fellow will work as part of a multi-institutional and cross-disciplinary research team. The research program, entitled Computing the Biome, funded by the National Science Foundation's Convergence Accelerator program is centered on using mosquitoes as biosensors for detecting the presence of vertebrates, microbes, and viruses in the environment. The NSF-funded effort will be deployed in an urban center and selected mosquito samples will be sequenced and this data will be used to drive studies of mosquito genomics at Johns Hopkins University.

The postdoctoral fellow will be responsible for analyzing genetic barcode data as well as mosquito genomic data from collaborative metagenomic analyses. A thorough understanding of mosquito biology and mosquito genomics is required. The responsibilities include isolation of nucleic acids for sequencing and PCR studies, development of barcode based tools for mosquito identification, assembly and annotation of mosquito genome data as it becomes available, and association of genetic data with biology of interest (i.e. mosquito immunity, microbial load association, ecological associations, etc...). Thus, a combination of computational, programming and molecular bench skills is required.

This individual will work closely with collaborators from academic, industry and government partners. The position is available immediately for one year (with the possibility of renewal for a 2nd year contingent on satisfactory performance). We are looking to fill the position as soon as possible and the position will remain open until filled. Salary is based on the NIH post-doc salary scale. Applicants should submit a CV, statement of research interests, writing/publication sample and contact information of three references. Contact: Douglas Norris douglas.norris@jhu.edu

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A post-doctoral fellowship opportunity has recently been announced that focuses on climate and vector-borne diseases. The position is being announced by NOAA and will support a fellow who will work on a joint NOAA-CDC effort to develop and transition climate/weather and health models and research into new information products and services for vector-borne disease prediction, and early warning tools for disease prevention. This position will be located at the NOAA Global Systems Laboratory in Boulder, CO, with regular visits to the CDC Division of Vector-Borne Diseases (DVBD) in Fort Collins, CO. The position will be posted through Friday, June 17, 2022. Position Term: 1-year term with the possibility for extension. For more information and to apply, go to: https://ucar.wd5.myworkdayjobs.com/en-US/UCAR_Careers/details/CPAESS-Postdoctoral-Researcher_REQ-2022-188-1.





Society for Vector Ecology

1295 E. LOCUST ST
ONTARIO, CA 91761
USA

Phone: (909) 635-0307
admin@sove.org

Newsletter Editor
Lal S. Mian, Ph.D.
lmian@csusb.edu

We are on the Web!
www.sove.org

About SOVE

The Society for Vector Ecology is a nonprofit professional organization formed in 1968 by a group of individuals involved in vector biology and control programs in California. The membership has since grown to represent an amalgamation of diverse research, operational, and extension personnel from all over the world. The Society is committed to solving many complex problems encountered in the field of vector biology and control. Among these are the suppression of nuisance organisms and disease vectors through the integration of various control options, such as environmental management, biological control, public education, and appropriate chemical or non-chemical control strategy.

The Society publishes the biannual Journal of Vector Ecology that contains research and operational papers covering many phases of vector biology, ecology, and control. The Society also issues a quarterly newsletter and holds an annual conference in September/October.

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smulligan@mosquitobuzz.net

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achaskopoulou@ars.ebcl.org

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Nicole Achee PhD
nachee@nd.edu

South Central USA

Steve Presley, Ph.D.
steve.presley@ttu.edu

Northwestern USA, Canada

Charles (Ben) Beard, PhD
cbb0@cdc.gov

Southwestern USA

Lal S. Mian, PhD
lmian@csusb.edu

Asian -SOVE

Hong-Liang Chu, PhD
medchu@vip.163.com

European-SOVE

Filiz Gunay, PhD
gunayf@gmail.com

Indian Region-SOVE

Ashwani Kumar, PhD
ashwani07@gmail.com

Latin American-SOVE

Paulo Pimenta, PhD
pimenta@cpqrr.fiocruz.br

Student Director

Steve Lloyd -Jones
Steven.lloyd-
jones@research.staffs.ac.uk

=====

EDITORS

Journal Editor

Marc J. Klowden, PhD
mklowden@uidaho.edu

Newsletter Editor

Lal S. Mian, PhD
lmian@csusb.edu

